## **ABSTRACT**

18

)

A method and apparatus are provided for performing electronic equalization in optical communication systems. Coefficient values in equalizers, such as feed forward equalizers or decision feedback equalizers, are updated using higher-order algorithms in the Least-Mean-2Nth-Order family. An optical receiver includes a photo-detector for converting a received optical signal to an electrical signal; and an equalizer for removing intersymbol interference from the electrical signal, wherein coefficients of the equalizer are updated based upon a least-mean 2N<sup>th</sup>-order (LMN) algorithm (N is greater than one). Feed forward equalizer and decision feedback equalizer implementations are disclosed. The non-symmetric nature of optical noise is addressed by varying A slicer threshold based on an incoming signal distribution to reduce bit errors.

15

10

5

1200-1085.app